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OF THE

RESPIRATORY AND CIRCULATORY SYSTEMS.

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REPRINTED FROM THE HAHNEMANNIAN MONTHLY, PHILADELPHIA,
MARCH, 1889.



AUTHOR'S EDITION.

1889.



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AN ADJUVANT TO THE HOMOEOPATHIC TREATMENT OF DISEASES OF
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BY WILLIAM W. VAN BAUN, M.D., PHILADELPHIA.

(Read before the Philadelphia County Homœopathic Medical Society.)

THE effort now being made to strip oxygen of its charlatanism and to cloth it as a scientific remedial agent, claims the approval of the profession.

While we deeply regret that the arduous labor, and the notable results attained by Drs. Beddoes, Sir Humphrey Davy, Hill, Thornton, Cavello, Erichsen, Demarquay, and others, in developing oxygen as a therapeutical agent, should have borne so little fruit, we are reconciled, in the present, by the fact that the researches and investigations of Drs. Smith, Wallian, Jaccoud, and others, have given oxygen an impetus that is carrying it towards a future of unusual distinction.

The therapeutical history of this great pneumatic agent has been such as merit of the unworthy must expect. The wonderful results announced by the early enthusiastic investigators were too miraculous for the conservatively biased medical mind of the early part of the present century. Its unjust, prejudiced and incompetent critics turned from a scientific investigation of its merits to indulge in ridicule, and then in positive persecution of its advocates. The explorers in this new field of *materia medica* were not able to withstand the malevolent attacks of its enemies, and, failing to enlist new recruits, they did but little towards determining the remedial value of the new factor.

The storm of ridicule and unreasoning opposition, however, did not deter the professional outlaws from seizing upon part of what was good in the pneumatic revelation, and from that day to this they have, by means of public appeals to the love of the mysterious so inherent in human nature, enriched themselves, at the expense of credulous dupes, by using the so-called "compound oxygen," "the oxygen home treatment," "perfected oxygen," and the various ozone

cures. Their methods were, and are, so notorious that the very name of oxygen has become offensive to the professional mind, and it is only recently that the great utility of this gas has commanded the attention of the highest professional circles.

The chief source of hindrance to the general employment of oxygen by the profession has been the lack of facilities for procuring a prompt supply of the agent in convenient form, and of a quality sufficiently pure for prolonged clinical exhibition.

The commercial gas, on account of chlorine and other impurities, and by its deterioration from pressure, is not fit for medical use.

Fortunately, to-day these difficulties have been surmounted, and it is now no longer "necessary to use impure or questionable gas. The process for evolving pure oxygen is not complicated, and may be conducted without the aid of expensive apparatus by those who are not particularly apt in chemical manipulation. Familiar as it is, perhaps its concise repetition may assist some experimenters who have never attempted it, or whose recollections of the laboratory have been dimmed by time."—*Wallian*.

The best formula for practical purposes is that suggested by Fresenius :

R. P. Potass. chlorat., pure,	lbs. iv.
P. Manganesii. cryst., pure,	lbs. i.
P. Ferri carb., prec.,	grs. lxx. M.

S. To be well mixed and triturated, avoiding violent friction, lest an explosion be produced. (With reasonable care the liability to this accident is very slight.) The prepared material should be thoroughly desiccated by being exposed to moderate heat in an open oven, or by means of a chemical drying-chamber. Store in any receptacle which will protect it from moisture until wanted for use.

This is the method used by the American Oxygen Association in preparing their material for the generation of oxygen. The mixing of these ingredients is an unpleasant task on account of the dirt, and it will be to the advantage of those intending to use the gas to purchase the prepared material.

Most of the oxygen in use to-day is obtained by applying heat to potassium chlorate. The salt melts and decomposes with ebullition, yielding large quantities of gas; frequently, finely powdered, black manganese oxide is added, which causes the oxygen to become disengaged with greater facility. The manganese undergoes no change whatever; it merely acts by its presence.

The necessity of the entire purity of gases to be inhaled by the lungs cannot be too much dwelt upon, especially in chronic cases, where the administrations are to be continued for a considerable length of time. A perfectly pure oxygen can be obtained :

1st. By observing care in procuring the best of material from which to generate the gas.

2d. By avoiding a too high temperature in heating the material, as excess of heat evolves chlorine.

3d. By removing all deleterious matter given off with the gas by washing the oxygen through a series of wash-bottles. The first two bottles to contain a strong solution of caustic soda ; the third a solution of ferrous sulphate ; the fourth, pure water, or a solution of potassic permanganate ; and a fifth bottle packed loosely with anhydrous calcium chloride, covered with a filter of absorbent cotton.

As the blood does not absorb more than 25 or 30 per cent. of oxygen from the volume of any given inspiration it is not necessary to administer the gas in full strength. Experience has shown that 50 or 60 per cent. of oxygen, combined with 40 or 50 per cent. of nitrogen monoxide, is far more efficient than undiluted oxygen in cases with neuralgias, neurasthenia, insomnia, etc. And for the majority of cases, especially those of the respiratory, circulatory, and hematopoietic systems, a further dilution of the two gases with 20 to 40 per cent. of common air will be found necessary to attain the full and lasting benefit of this method of treatment.

The apparatus necessary for the generation, purification, storage, and dispensing of oxygen and nitrous oxide gas, are few and simple. They consist of an ordinary oil stove for generating heat; an iron or copper retort, preferably cone-shape, for heating the prepared oxygen material ; six glass wash-bottles of sufficient capacity, with rubber corks, fitted with a long and short glass tube. (The long perforated bulb-end tube of the American Oxygen Association, is the best, as it conveys the gas to the bottom of the liquid in the bottle and breaks it into fine bubbles, the gas by this means being thoroughly purified.) For storage, an ordinary twenty-five or fifty gallon gasometer is all sufficient. The best method of handling the nitrous oxide gas, is in the shape of a 100-gallon cylinder, such as is furnished by the S. S. White Co., for dental purposes. A gasometer of eight or ten gallons capacity will be most serviceable for preparing the gases to be dispensed ; the oxygen and nitrogen monoxide can be readily mixed in any proportion, and common air may be added as desired. The customary dispensing flask is to be

attached to the gasometer, by means of rubber tubing. The inhaling tube, leading from the flask, is to be furnished with glass mouth-pieces, which can be readily detached, cleansed and disinfected.

Administration: Inhalations of oxygen should not be given on an empty stomach, or after a prolonged fast, or when the patient is unusually fatigued. As a rule, one treatment per day is sufficient. ("In the anxiety of both physician and patient to see palpable signs of immediate improvement, the tendency is to overdo in matter of dosage."—*Wallian*). The patient is to stand erect, with the shoulders well back. The residual air is then to be expelled from the lungs as thoroughly as possible, after which, the gas is to be slowly inspired by a steady effort until the lungs are as full as comfort will permit. The inspired gas is to be retained as long as may be, or until the patient experiences some distress; it is then to be slowly and deliberately expired through the nose. I find it of advantage to have some patients walk once or twice across the office floor, before allowing the gas to escape from their lungs.

In using oxygen as a remedial agent, care must be exercised in selecting cases. It is useless to accept hopelessly incurable patients; or those who will not loyally follow up the treatment for a definite period of two, three or four months. With these conditions attended to, oxygen will be found to be indicated "in every chronic morbid condition of which it is possible to form a conception."—*Wallian*. It is also efficacious in acute conditions requiring aeration of the blood, as in certain stages of pneumonia, where it will often bridge over an imminent danger, in typhoid fever, and in the asphyxias.

In incipient phthisis it is undoubtedly desirable to secure an increased expansion of the chest, and how can this be more effectually, or more expediently accomplished than by inflating the lungs with deep inhalations of oxygen, combining with it, forced efforts of expiration to overcome the mechanical resistance?

"In the year 1784, Jurine of Geneva, published a short essay on the subject of oxygen, and reported a case of phthisis, in a young lady, very much benefited by inhalation of the gas.

In 1789, Chaptal of Montpelier, reported two cases of phthisis treated by the same agent, in one of which marked relief was obtained, while in the other the results were negative."

Drs. Hayem of the St. Antoine Hospital, Paris, Ringer of London, Buttles of N. Y., Kirnberger of Mayence and Lorenz of Vienna, report excellent results in anaemia, chlorosis, leukæmia and pseudo-leukæmia, from inhalations of oxygen.

Dr. Andrew K. Smith, in a prize essay on "Oxygen Gas as a Remedy in Disease," claims that oxygen inhalations cause an average of nine beats less in the heart per minute, and that it facilitates capillary circulation.

Paul, Demarquay, Duory, Ozanam and Jackson, consider oxygen an antidote for all the asphyxias, and especially for the relief of cases of overaction of an anaesthetic.

Dr. Paul, of Paris, and Dr. Eckert, claim that albuminuria has disappeared under the influence of this gas.

Dr. Heinemann, at a recent meeting of the New York Neurological Society, recommended the oxygen treatment in muscular weakness of the heart uncomplicated by dilatation or valvular disease.

Dr. J. Schmidt in the *Münchener Medicinische Wochenschrift*, No. 16, 1888, reports that he obtained astonishing results from the parenchymatous injection of ozone water, in retarding the growth of cancer nodules and causing their final disappearance. He especially recommends it for recurrent growths and cancers which are not readily accessible to operative treatment.

Dr. Korndoerfer, in the *Homœopathic Recorder* for July, 1888, states that he has observed "that ozone will positively increase the duration and intensity of the reactive force of the patient; or, in other words, increase the curative effect of the administered drug."

"In his recent dangerous illness (pneumonia and bronchitis), Professor Billroth, after everything else that science could suggest had been done for his relief, appears to have derived most benefit from inhalations of pure oxygen. Under this treatment the dyspnoea diminished, the pulse became stronger, and consciousness gradually returned."—*Brit. Med. Journal*.

Pepper, Herman, Biegel, and others, recommend the use of oxygen in croup; and good results have been reported in cholera, diabetes, hydrophobia, senile gangrene, eclampsia, eczema, etc.

Oxygen is not a destructive element, but in reality is a restorative; its absorption into the blood, its direct and rapid distribution to every tissue throughout the entire system, contributes directly towards constructive rather than destructive metamorphosis; its direct effects are, therefore, "to be looked for in the circulating fluid rather than in the mere organs of respiration."—*Wallian*. This is seen to be the case by noting the results of the oxygen treatment in phthisis, scrofula, rachitis, chlorosis, hypochondria, Bright's disease, uræmic coma, etc. It is on this factor that Jaccoud finds his treatment of Bright's disease; which is, to give ten-litres inhalations of oxygen

three times daily, with the simplest possible diet, and at the same time to promote tissue exchange with the inhaled gas by a systematic application of douches followed by friction.

In presenting the following cases for consideration, I do not desire to over-estimate the value of oxygen, neither do I wish to under-estimate the great utility of this pneumatic adjuvant in the treatment of suitable cases. My experience has taught me that without the indicated remedy the results are neither as prompt nor as lasting.

CASE I.—Miss X., a young lady of 21 years, in good circumstances. Has been under treatment two years for chlorosis; during the last six months she has been rapidly growing worse. October 10th, 1888. The patient is a plump brunette, five feet in height, and weighing 106 pounds, with a characteristic yellowish-green complexion, with bluish-black rings, or occasionally puffiness, under the eyes, the sclerotics being pearly and glistening. Mucous membrane of the mouth pallid. Temperament emotional, with marked nervous symptoms. She complains of breathlessness, palpitation, and fainting. Effort of any kind, especially muscular, starts the heart into tumultuous action, and brings on difficult breathing with oppression of the chest and great throbbing on both sides of the neck. There is a constant, strong feeling of fatigue and weariness. On walking any distance, the calves feel swollen and hard, followed, during the night, by severe cramps, knotting the muscles of the legs and continuing, at intervals, all night.

Energetic muscular exertion causes exhaustion with fainting. Yesterday, on ascending two flights of stairs, with halting for breath, on reaching the top landing she fell in a dead faint, remaining in the swoon for over an hour; this was followed by palpitation, terrible distress in praecordia, dyspncea, and sleeplessness.

Her appetite is capricious, with poor digestion, and severe, long-lasting constipation. Menstrual flow now absent for five months. No leucorrhœa. Mouth dry, occasional sore throat, naso-pharyngeal catarrh, and a dry, barking cough.

Physical Examination.—Heart dilated, without compensation, apex beat at upper border of sixth rib, to the left of nipple, two fingers in breadth; action irregular. An anaemic *bruit* at the base and over the large vessels, being especially distinct at the left side of the neck. Pulse, rapid and full, but soft. Lungs and other organs negative. Micturition frequent; quantity, 30 to 40 ounces; color, yellow; sp. gr., 1008; reaction, acid; sediment flocculent; no albumen, no sugar, and no tube-casts.

Microscopical examination of the blood showed a great increase in the number of white blood corpuscles.

The patient having been under a course of iron and oil, she now received tincture of digitalis and glonoin.

October 20th.—Palpitation, dyspnoea and sleeplessness greatly improved, other symptoms the same.

October 24th.—Condition not changed; cannot walk fast or use any exertion on account of distress in abdomen, and a great weariness. To-day, her pulse is 102; vital capacity, 130 cubic inches (tested by dry spirometer), and expansion $2\frac{1}{2}$ inches, being 52 cubical to 1 lineal inch. Commenced oxygen treatment, O₂, N₂O, and common air, $\text{a} \text{a}$, 3 gallons daily.

November 5th.—Feels much better, but still she cannot walk fast or hurry in any way. She can now ascend, slowly, one flight of stairs without stopping. Vital capacity, 150 cubic inches; pulse, 84; respiration, 18. The capacity is increased 20 cubic inches, and the pulse is lessened 18 beats. Treatment continued, with the following remedies, as indicated, cal. carb., coeculus, and lycopodium.

December 5th.—Is greatly improved; she can ascend two flights of stairs without resting, and there is no palpitation or dyspnoea. She has a good appetite, with easy digestion. Bowels have been moved daily for one month. Menstrual function has been renewed. Lips have quite a deep color, and her face is no longer "white," but is frequently flushed. Vital capacity, 150 cubic inches; expansion, 3 inches; weight, $112\frac{1}{2}$ pounds, a gain of $6\frac{1}{2}$ pounds. Treatment continued. An occasional dose of lycopodium.

December 30th.—Has returned from a week or two in the country; states that she is in better health, and that she can endure greater fatigue than at any time for the past three years. Contrary to orders, while away she has been constantly on a social round, attending three or four dances which she enjoyed greatly. As an evidence of her recovery, and as an intimation she desires to stop treatment, she states that before starting out to-day she ran up stairs from the ground-floor to the third story without any discomfort. The heart is markedly toned up, and the anæmic *bruit*, while still present, is very much weaker, and is heard only at the neck. I have insisted on her continuing treatment for one month longer.

February 15th, 1889.—The patient is still enjoying exceptionally good health.

CASE II.—Mrs. H., aged 26 years, married, one child. Family history, phthisical; father, five brothers, two sisters, and all of her

mother's family have died of consumption. Mother, insane. The patient suffers from severe dysmenorrhœa. She has had cough and chest pains for two years. A naso-pharyngeal and laryngeal catarrh. There is deficiency of expansion, and feeble respiration over the upper portion of the right lung, but no appreciable consolidation.

Expansion, $1\frac{1}{2}$ inch; capacity, 70 cubic inches on forced expiration.

After one month active treatment of oxygen and nitrogen monoxide, equal parts, diluted with 30 per cent. of common air, commencing with three inhalations daily of 60 cubic inches, which was gradually increased to six inhalations of 150 cubic inches daily, with the appropriate remedy, her vital capacity increased to 160 cubic inches, and the expansion to 2 inches, with 2 pounds increase of weight, together with marked benefit of general health. At this stage, I regret to state, that owing to circumstances that could not be controlled the patient was compelled to stop the oxygen treatment.

It is to be noted that, at the end of one month, this patient's chest expansion had increased three-fourths of an inch. Her vital capacity had jumped from 70 to 160 cubic inches, a gain of 90 cubic inches; with a relative alteration of the cubical to the lineal measurement from 60 to 80 cubic inches to the lineal inch.

Admitting that the oxygen was administered in this case for too short a time to be of lasting benefit, if the patient will continue to use her increased lung-space, she will derive incalculable benefit from the thorough inflation of her lungs.

CASE III.—Mrs. McN., aged 50, a hard-working woman. This is a case of inveterate bronchial asthma, of seven years' standing, gradually growing worse. The attacks are always aggravated in October and November, at which time she is confined to her room for six or seven weeks. These severe attacks have been repeated yearly since the fall of 1880.

October 29th, 1888.—She called at my office, stating that for a week her regular annual attack of asthma had been gradually coming on, and she was sure to be confined to her room in a few days, as she had never been able to obtain relief. She had been compelled to sit up all night for the last three nights.

At present her breathing is somewhat increased, inspiration short, abrupt and jerky, expiration prolonged, respiration noisy and wheezing, she has a hard cough, with expectoration of little lumps of phlegm. I gave her nux vom. 3, and allowed her to inhale frequently, every

five minutes for half an hour, oxygen and nitrous oxide, &c. She was only able to breathe in, with a somewhat prolonged gasp, 15 to 20 cubic inches of the gas at each inspiration. At the end of half an hour she stated she felt better than for three days past. I could not see any change in her breathing.

October 30th.—Patient had a better night. Treatment continued.

November 3d.—According to her statement, her lungs had never felt clearer in seven years; she had slept in comfort, all night, the last two nights.

December 30th.—The patient has continued treatment, on and off, up to the present time. Whenever the asthmatic symptoms returned, they were promptly and entirely relieved in three days by the oxygen; then she would stop coming until, owing to her constant exposure, a fresh cold would cause a renewal of the trouble. She has not lost a day's work on account of her asthma this fall or winter up to the present.

CASE IV.—Mrs. K. A well-marked case of emphysema, with bronchial catarrh; her trouble dates from a catarrhal pneumonia in 1880. There is a persistent annoying cough almost all the time, with frequent expiratory dyspnoea; scanty expectoration. Some dyspepsia. Expiration is prolonged and jerky. Vital capacity, 90 cubic inches. Expansion, one-fourth of an inch. After a month's careful treatment, her capacity increased to 100 cubic inches on prolonged forced expiration. She has never been able to go beyond this figure. The patient has improved in every way, although by no means well. The prominent symptoms have all been relieved. The patient is still under treatment. I consider that the prospects for a complete cure are dubious.

CASE V.—Willie J., aged 13. History of frequent illness; two violent attacks of inflammatory rheumatism lasting for weeks, one when five and the other at seven years of age. When ten years old, he had a catarrhal pneumonia, since which time he has never been well, having recurrent attacks of bronchitis, with dyspnoea and great depression of vital forces, each fall and winter. His chest is bulging (emphysema), excepting the anterior right side below the fourth rib, which is consolidated. Mitral insufficiency, apex beat diffused, three finger tips. Urine negative. Capacity, 90 cubic inches; expansion, 2 inches.

The oxygen treatment has proved decidedly beneficial in this case. After two months of daily inhalations, his capacity has increased to 120 cubic inches, and the expansion to $2\frac{1}{2}$ inches. His cough, short-

ness of breath and wheezing have not troubled him during the last month, much to the delight of his parents. Although exposed to all kinds of weather, he has not caught cold, and has had but few twinges of his old chronic rheumatism; he can stand much greater fatigue, sleeps well, and awakens refreshed. The change, if any, at the base of right lung, is for the better. I feel justified in urging this case to continue the treatment.

CASE VI.—Miss G., schoolteacher, aged 36. A most marked case of what is now so well understood by the fashionable term neurasthenia, or, as Hahnemann put it, a case dependent upon psoric miasm. I had been treating her with antipsorics for a year and a half with a slow but sure improvement. Desiring to hasten the case I placed her on the oxygen treatment, with daily inhalations of three gallons of equal parts of O_2N_2O , and common air. After the first week she seemed to rapidly improve, her gastric symptoms, insomnia and many of the nervous phenomena disappeared, her menses returned after an absence of twenty-two months, she increased in weight at the rate of a pound and a half per month, and appeared to be rousing her dormant self to an interest in the world, when suddenly, without a moment's warning, towards the close of the third month of the treatment, she grew rapidly worse, and at present her condition is the same, if not worse, than when we began the oxygen. The cause of this relapse I have not yet been able to satisfactorily determine. I have advised her to discontinue treatment for one month, when I will try again, and report results.

The oxygen treatment in all these cases has been coupled with a most careful medication, a rigid dietary, and a systematic personal hygiene.

In the first five cases the results have been all, and more than was expected. The sixth case is *sub judice*.

